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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/788,628

02/26/2004

Cheri Pereira

07783.0067.CPUS02

6512

27194

7590

05/18/2006

EXAMINER

YAO, SAMCHUAN CUA

HOWREY LLP

C/O IP DOCKETING DEPARTMENT

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FALLS CHURCH, VA 22042-2924

ART UNIT

PAPER NUMBER

1733

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/788,628	<b>Applicant(s)</b> PEREIRA ET AL.	
	<b>Examiner</b> Sam Chuan C. Yao	<b>Art Unit</b> 1733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 February 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 12-17, 28-38, 40 and 41 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11, 18-27 and 39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>4/27/5 &amp; 4/18/6</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-27 and 39, drawn to a method for improving the adhesion properties and switching performance of an electrophoretic display, classified in class 156, subclass 327.
  - II. Claims 28-38, drawn to a composition classified in class 524, subclass 589+.
  - III. Claims 41-42, drawn to an electrophoretic display classified in class 524, subclass 296. Since claim 40 is missing, under Rule 1.126, these claims are renumbered to 40-41.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and III are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the process as claimed can be used to make other and materially different product such as forming an electrophoretic display where an electrode protecting layer is not required.
3. Inventions II and I are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different

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product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case, the product as claimed can be used in a materially different process of using that product such as using the adhesive composition for bonding wood members.

4. Inventions II and III are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because there is evidence that the particular characteristics of the subcombination are not essential to the patentability of the combination. In the present case, the characteristic of (for instance) an electrophoretic display can be used as a basis for showing that subcombination does not constitute the sole distinguishing novelty in the combination. Moreover, the subcombination has separate utility such as using the adhesive composition for adhesively bonding a windshield to a automotive frame member.

5. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

6. This application contains claims directed to the following patentably distinct species:

Species A: "a high dielectric polymer or oligomer"

Species B: "a radically or photochemically graftable polymer"

The species are independent or distinct because these two species are mutually exclusive from each other and they are not an obvious variant from each other.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

7. During a telephone conversation with Ms Viola Kung on 04-04-06 a provisional election was made without traverse to prosecute the invention of Group I Species A (claims 1-11, 18-27 and 39). Affirmation of this election must be made by applicant in replying to this Office action. Claims 12-17, 28-38 and 40-42 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

***Claim Objections***

8. Claims 1-11, 18-27 and 39 are objected to because of the following informalities:

"or" should be inserted between "... oligomer," and "a radically ..." in claim 1.

Furthermore, "Desmodur" and "Irodur" in claim 24, and Irgacure in claim 19 should be written in capital letters as they are tradename of a chemical composition. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 2-3, 11, and 24-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 2-3 are indefinite, because it is unclear what conditions were used to obtain the recited dielectric constant of a composition in claim 1. A dielectric constant of a material is NOT only dependent on the material, but also dependent on a number of factors such as frequency, temperature, etc.

Claims 11 and 24 are indefinite, because of the terms "IROSTIC", "Desmodur" or "Irodur". These terms are live tradenames. A tradename by its very nature does not have a fixed chemical composition. Its composition could change with time. For this reason, a tradename cannot be used properly to identify any particular material or product, thereby renders these claims indefinite.

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Claims 25-27 are indefinite, because it is unclear whether a catalyst is positively required in these claims. When an optional crosslinking agent is not present, is the particular catalyst recited in these claims required or merely optional?

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-10, 22-27 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al (US 2002/0075556 A1) in view of Takada et al (US 4,985,535) or Engineeringtalk copyright 2000-2006.

With respect to claims 1 and 39, Liang et al discloses a process of making a electrophoretic display. The process includes forming sealed microcups, and then bonding the microcups to a conductor film which is pre-coated with an adhesive (numbered paragraphs 67-76; 80-88; figure 6, 7h). While Liang et al teaches using "pressure sensitive adhesive, a hot melt adhesive, a heat, moisture or radiation curable adhesive" (emphasis added; numbered paragraph 88), Liang et al appears to be silent on the particular type of adhesive composition which is used for bonding sealed microcups and a conductor film. However, it would have been obvious in the art to use a moisture-curable hot-melt polyurethane adhesive suggested by Takada et al in the process of making electrophoretic display of Liang et al, because Takada et al, drawn to an

adhesive system of a type suggested by Liang et al (i.e. hot melt and moisture curable adhesive), teaches the hydroxyl-terminated polyester polyurethane adhesive composition as being “useful for the adhesion at low temperature, and shows an excellent heat resistance and initial physical properties” “in terms of strength, elongation and modulus” (abstract, col. 1 lines 8-14; 43-59; col. 4 lines 32-46). The incentive for one in the art to use an adhesive composition taught by Takada et al would have simply been to obtain self-evident advantages of being excellent heat resistance at the same time prevent a conductor film on sealed microcups from shifting while the adhesive is curing. Moreover, since the adhesive is useful for bonding at low temperatures, this also would prevent the substrates from degrading by heat during the heat-bonding operation.

**Alternatively**, it would have been obvious in the art to use an IROSTIC adhesive, which is a thermoplastic (i.e. hot-melt) polyurethane adhesive in the process of making electrophoretic display of Liang et al, because it is disclosed in Engineeringtalk that an IROSTIC adhesive (an adhesive of a type suggested by Liang et al (i.e. hot-melt and curable adhesive)) is a “high performance adhesive grades found in multiple adhesive applications, such as solvent borne systems, hot melts and as well as additives for reactive adhesive to increase green strength ...” and it is further disclosed that when IRODUR (polyisocyanate crosslinker) is added to the IROSTIC adhesive, it “enhances heat, hydrolysis, oil and chemical resistance of the final adhesive formulation.”



While none of the above references explicitly describe a hydroxyl-terminated polyester polyurethane of Takada et al or an IROSTIC adhesive as being "a high dielectric polymer", the polyurethane is reasonably expected to be a high dielectric polymer since the polyurethane is substantially similar, if not identical, to the polymer taught by Applicant (see claims 4-11 and Table 1 in Applicant's specification). If a hydroxyl-terminated polyester polyurethane (claims 4 and 6-11) of the present invention is a high dielectric polymer with a dielectric constant range of 6-15 (claim 3), it would be reasonable to expect that the hydroxyl-terminated polyester polyurethane of Takada et al or IROSTIC adhesive must also have a dielectric constant which falls around the range recited in claim 3. For these reasons, claims 2-3 would natural flow from the adhesive of Takada et al or an IROSTIC adhesive.

With respect to claims 4-10, as noted earlier, Takada et al teaches using a hydroxyl-terminated polyester polyurethane adhesive. As for claim 4-11, an IROSTIC adhesive disclosed in Engineeringtalk is reasonably expected to be a hydroxyl-terminated polyester polyurethane adhesive, since claim 11 is dependent on claim 10.

With respect to claim 22, it is disclosed that adding IRODUR (polyisocynate crosslinker) to the IROSTIC adhesive "enhances heat, hydrolysis, oil and chemical resistance of the final adhesive formulation."

With respect to claims 23-24, while not explicitly disclosed, it would be reasonable to expect that an IRODUR crosslinker disclosed in Engineeringtalk is

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an aliphatic polyisocyanate because claim 24 which is dependent on claim 23 (aliphatic polyisocyanate) requires using IRODUR E-358 (from Hunstman polyurethane). In any event, it would have been obvious in the art to use IRODUR E-358 from among the IRODUR series, because one in the art would have reasonably determined, by routine experimentation, a suitable IRODUR which would optimally enhance the characteristics of a finished adhesive in the environment of making an electrophoretic display suggested by Liang et al. With respect to claims 25-27, see column 6 line 55 in example 1 of the Takada et al patent.

Note: Where ... the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. **Whether the rejection is based on "inherency" under 35 USC § 102, on prima facie obviousness" under 35 USC § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products."** In re Best, 562 F2d 1252, 1255, 195 USPQ 430, 433-4 (CCPA 1977).

13. Claims 1-10, 22-27 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al (US 6,239,896) in view of Takada et al (US 4,985,535) or Engineeringtalk copyright 2000-2006.

Ikeda et al discloses a process of making an electrophoretic display device. The process comprises adhesively heat bonding partition walls (7) of a display device and a covering substrate (6) (abstract; col. 3 lines 38-67; col. 9 lines 19-30).

Ikeda et al is silent on the particular type of heat-bonding adhesive. However, it would have been obvious in the art to use a moisture-curable hot-melt polyurethane adhesive suggested by Takada et al in the process of making electrophoretic display of Ikeda et al, because Takada et al, drawn to an adhesive system of a type suggested by Ikeda et al (i.e. hot-melting adhesive), teaches a hydroxyl-terminated polyester polyurethane adhesive composition, the composition is "useful for the adhesion at low temperature, and shows an excellent heat resistance and initial physical properties" "in terms of strength, elongation and modulus" (abstract, col. 1 lines 8-14; 43-59; col. 4 lines 32-46). The incentive for one in the art to use an adhesive composition taught by Takada et al would have simply been to obtain a self-evident advantages of being excellent heat resistance at the same time prevent a covering substrate from shifting relative to partition walls while the adhesive is curing. Moreover, since the adhesive is useful for bonding at low temperatures, this also prevent the substrates from degrading during the heat-bonding operation.

**Alternatively**, it would have been obvious in the art to use an IROSTIC adhesive, which is a thermoplastic (i.e. hot-melt) polyurethane adhesive in the process of making electrophoretic display of Ikeda et al, because it is disclosed in Engineeringtalk that an IROSTIC adhesive (an adhesive of a type suggested by Ikeda et al (i.e. hot-melting adhesive)) is a "high performance adhesive grades found in multiple adhesive applications, such as solvent borne systems, hot melts and as well as additives for reactive adhesive to increase green strength ..." and

it is further disclosed that when IRODUR (polyisocyanate crosslinker) is added to the IROSTIC adhesive, it "enhances heat, hydrolysis, oil and chemical resistance of the final adhesive formulation."

While none of the above references explicitly characterize a hydroxyl-terminated polyester polyurethane of Takada et al or an IROSTIC adhesive as being "a high dielectric polymer", the polyurethane is reasonably expected to be a high dielectric polymer since the polyurethane is substantially similar, if not identical, to the polymer taught by Applicant (see claims 4-11 and Table 1 in Applicant's specification). If a hydroxyl-terminated polyester polyurethane (claims 4 and 6-11) of the present invention is a high dielectric polymer with a dielectric constant range of 6-15 (claim 3), it would be reasonable to expect that the hydroxyl-terminated polyester polyurethane of Takada et al or IROSTIC adhesive must also have a dielectric constant which falls around the range recited in claim 3. For these reasons, claims 2-3 would natural flow from the adhesive of Takada et al or an IROSTIC adhesive.

With respect to claims 4-10, as noted earlier, Takada et al teaches using a hydroxyl-terminated polyester polyurethane adhesive. As for claim 4-11, an IROSTIC adhesive disclosed in Engineeringtalk is reasonably expected to be a hydroxyl-terminated polyester polyurethane adhesive, since claim 11 is dependent on claim 10.

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With respect to claim 22, it is disclosed that adding IRODUR (polyisocyanate crosslinker) to the IROSTIC adhesive "enhances heat, hydrolysis, oil and chemical resistance of the final adhesive formulation."

With respect to claims 23-24, while not explicitly disclosed, it would be reasonable to expect that an IRODUR crosslinker disclosed in Engineeringtalk is an aliphatic polyisocyanate because claim 24 which is dependent on claim 23 (aliphatic polyisocyanate) requires using IRODUR E-358 (from Hunstman polyurethane). In any event, it would have been obvious in the art to use IRODUR E-358 from among the IRODUR series, because one in the art would have reasonably determined, by routine experimentation, a suitable IRODUR which would optimally enhance the characteristics of a finished adhesive in the environment of making an electrophoretic display suggested by Liang et al.

With respect to claims 25-27, see column 6 line 55 in example 1 of the Takada et al patent.

With respect to claim 39, forming an electrophoretic display using a microcup technology is well known in the art. One in the art would have chosen among the known effective methods for making an electrophoretic display. The advantage of using a microcup technology is that one can continuously mass produce electrophoretic display.

14. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over the references set forth in numbered paragraph 12 or 13 as applied to claim 1 above, and further in view of Shimizu (US 5,827,926).

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While Takada et al is open to using various types of additives such as a UV absorber (col. 6 lines 9-18), none of the above references teaches incorporating a photoinitiator. However, it would have been obvious in the art to incorporate an adhesive of Takada et al, because Shimizu drawn to a moisture-curable hot-melt polyurethane adhesive, discloses that it takes about 5-7 days for the adhesive to fully cures and further discloses using a photoinitiator to initiate radical polymerization "for ease of reaction". Moreover, the art would have readily recognized that adding a photoinitiator is an effective alternative to using a crosslinking agent for initiating crosslinking to an adhesive composition. For this reason, it would have been obvious in the art to use a photoinitiator instead of using a cross-linking agent to an adhesive composition disclosed by Engineeringtalk.

15. Claim 19-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the references set forth in numbered paragraph 14 as applied to claim 18 above, and further in view of Ansell (US 4,192,762).

With respect to claim 19, ketone type photoinitiators such as the one recited in this claim are art recognized effective photoinitors for various resin compositions. Moreover, Ansell discloses a polyurethane type adhesive where various ketone type photoinitiators such as a benzophenone is disclosed (abstract; col. 4 lines 32-45). It would have been obvious in the art to use a ketone type photoinitiator such as a benzophenone, because absent any showing of unexpected benefit, it

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is taken to be well within the purview of choice in the art to choose from among the various effective photoinitiators in the art.

With respect to claims 20-21, see column 32-35 of the Ansell patent.

### ***Double Patenting***

16. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

17. Claims 1-10, 18, 22-27 and 39 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the pending claims of copending Application No. 10/651,540. Although the conflicting claims are not identical, they are not patentably distinct from each other because the presently recited basically embraces the claims in 10/651,540.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

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**Conclusion**

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Chuan C. Yao whose telephone number is (571) 272-1224. The examiner can normally be reached on Monday-Friday with second Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Richard Crispino can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Sam Chuan C. Yao  
Primary Examiner  
Art Unit 1733

Scy  
04-25-06